

10005

September 11, 1981

Mr. John Bressett
184 High Street
RFD 1
Liale, New York 13797

SUBJECT: Contamination of Well Water

Dear Mr. Bressett:

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Enclosed are the results of the gas chromatography-mass spectrometer (GCMS) analysis for volatile organics. They are essentially the same constituents and amounts as I told your father over the phone last Friday. The constituents labeled (IS) are internal standards of 100 parts per billion (ppb). The trimethylsilanol (56 ppb) is probably due to contamination from cleaning and preparation of the glass sampling vials. The three components of concern are perchlorethylene (3,329 ppb), trichloroethylene (772 ppb), and trans 1, 2 - dichloroethene (904 ppb). While the first 2 are not currently on the priority pollutant list, the guideline for perchloroethylene is 40 ppb. Something should be done to clean up these gross organic contaminants.

There are four major questions that must be answered: 1) where are the contaminants coming from? 2) how extensive is the contamination within the aquifer? 3) how can the well (or aquifer) be cleaned up? 4) who will pay the costs incurred?

It is intuitively obvious, but not yet a foregone conclusion, that the contamination is leaching from the septic sludge disposal pits upgradient from the well. Chlorinated and oxidized hydrocarbons, such as the gross contaminants, are commonly utilized and commercially available solvents for cleaning and degreasing septic tanks. Truck tank washings from the Interstate Cleaners of Williamstown, Vermont also contained degreasing solvents which were disposed of in the pits. However, as I mentioned last Friday, no coliform or atypical bacteria was found in the well water sample. Nitrate nitrogen was less than our detection limit of 0.02 mg/l (ppm). Both these tests are indicative of contamination from a soil disposal system such as the one in question.

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The solubilities of the organic constituents are exceedingly low in comparison to nitrates and would not be expected to break-through to the groundwater first. Although denitrification can be occurring (which will happen before the organics are reduced), the lack of nitrates coupled with the lack of bacteria indicates potential microbial toxicity affects due to the organics.

The question of how extensive is the contamination is certainly relevant to the health of neighbors utilizing the aquifer. As I tried to point out the day we visited the site, groundwater movement would be to the South. The disposal pit is to the North of the well. Although surface runoff from the disposal site would be to the North, infiltration could reach the well. Movement of water through an unconsolidated aquifer, such as the one in question, is relatively rapid. In light of the high concentrations of volatile organics at the well, the extent of aquifer contamination may be significant.

The methodology for cleanup of the well (or aquifer) would depend on the answers to the first two major questions. Unfortunately, it will be rather expensive to ascertain the true source and extent of contamination. However, the design and operation of the disposal pits does not conform with State of Vermont regulations for this type of waste disposal. I believe that Mr. Wright may be held liable despite the lack of support given him by State Officials when he initiated the operation.

To remedy the situation I suggest we follow a phased approach to keep both costs and environmental damages to a minimum.

Phase I. Test the original well again plus groundwater wells within a 3,000 foot radius for the volatile organics. This will verify our original test and provide a handle on quantity variability over a short time period. It will also provide a handle on the extent of aquifer contamination and advise neighbors on their water quality and potential health hazards. While manpower and analyses may be available from the State Health Department, I would recommend proceeding on your own. DuBois & King, Inc. will provide both sampling and analyses for \$200/sample. Should serious contamination be found near the 3,000 radius (hopefully, it will not), a larger radius should be examined. Each sampling should include the original well to provide quantity/quality variations.

An approach of this nature should also verify the mass flow direction groundwater movement eliminating extensive hydrogeologic borings and investigations.

Phase II. This would, of course, be dependent on the results from Phase I. It could be a project completion phase in designing an aeration/filtration system for the well or it could be locating a new clean water source if contamination is great.

Phase III. This phase would include a protocol to seal off the disposal site to reduce or eliminate the contaminants entering the aquifer.

Phase IV. Cleanup of the aquifer, if required.

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Since our telephone discussion yesterday afternoon several events have occurred. I made discrete calls to some selected State Officials informing them of the situation and seeking financial support. The only potential source at this time would be sampling and analytical manpower from the State Health Department. The time factor and their inexperience with this type of sampling and analysis may not prove worthwhile for quick and efficient action on this problem. While a friend, head of the State Hazardous Waste Program is concerned about the contamination, it is small potatoes in terms of obtaining monies under a program such as 'Superfund'. His ideas on approaching this problem are very similar to mine.

Last night I had a call from your father requesting the final results and the latest information I had, and this morning I had a meeting with Mr. & Mrs. Wright and Mrs. Smith, the Town Health Officer. We agreed to proceed with Phase I starting Monday, September 14. A Letter of Agreement will be drawn up between DuBois & King, Inc. and the Wrights. The Scope of Services for this phase will include sampling and volatile organic analyses from adjacent wells as well as my time input for data interpretation, planning and consultation. The service costs will be billed by the sample plus my time input. The cost for Phase I will not exceed \$3,500. This will include our recommendations for Phase II. Mr. Wright will notify his neighbors and arrange for my sampling.

We will communicate with all parties involved; the Wrights, the Bressettes (Sr. & Jr.) and the Town Health Officer, Priscilla Smith.

Please contact me with any questions or comments regarding the initial results or recommendations I have made.

Very truly yours,

DuBois & King, Inc.

John F. Amadon
Laboratory Director

JFA/ch
Enclosures:

cc: Mr. & Mrs. Wright
Mr. & Mrs. Bressette
Mrs. Priscilla Smith

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ENGINEERING & ENVIRONMENTAL SERVICES

Route 66
Randolph, Vermont 05060
(802) 728-3376

10005
Sept. 11, 1981

Mr. & Mrs. John Bressett
184 High St.
RFD 1
Lisle, N.Y. 13797

SUBJECT: Contamination of Well Water.

Dear John & Karen;

Enclosed are the results of the gas chromatography-mass spectrometer (GCMS) analysis for volatile organics. A letter discussing the results, potential contamination ramifications, and our recommended course of action is forthcoming. It is complete but stuck in our computer and I wanted to get these results in today's mail.

I had a meeting with the Wrights today and will be instigating a second round of sampling and GCMS assays of the well and several wells in the immediate vicinity. The Wrights have agreed to fund this for a cost not to exceed \$3,500. Preliminary results should be available by next Friday (9/18).

I apologize for not being able to supply all my thoughts at this time. However, they will be in Monday's mailing.

Very Truly Yours,
DuBois & King, Inc.


John F. Amadon
Lab Director

Enclosures:

cc: Mr. & Mrs. L. J. Bressett
Mr & Mrs. J. B. Wright
Mrs. Priscilla Smith, Randolph Health Officer

Randolph, Vermont Burlington, Vermont Concord, New Hampshire Biddeford, Maine

10005

September 14, 1981

Mr. & Mrs. J. B. Wright
Rte. 12
Randolph, Vermont 05060

SUBJECT: Proposed Scope of Services

Dear Mr. & Mrs. Wright:

DuBois & King, Inc. is pleased to be able to offer you the following services. We share your concern over the potential ramifications of the contaminated well and sincerely hope the contamination is not widespread. We respect your attitude and cooperation. We have tried to limit costs without sacrificing quality and believe the phased approach to this problem is the correct one.

Phase I services include an immediate sampling and GCMS analysis on the groundwater wells in your immediate vicinity as we discussed. The cost will be \$200 per sample, which includes my sampling time. Additional time for consultation, data interpretation and planning for any successive phases will be billed at my hourly rate of \$33 per hour. The total cost for Phase I will not exceed \$3,500.

A signed copy of this letter returned to our office will serve as a Letter of Agreement and authorize DuBois & King, Inc. to proceed with the prescribed services.

Finance charges are imposed if payment is not made within twenty (20) days of the receipt of monthly invoices. If payment is made within the twenty (20) days, no finance charge will be imposed.

Mr & Mrs. J. B. Wright
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September 14, 1981

Finance charges are imposed by a monthly rate of 1.5% which is an annual percentage rate of 18%. This monthly rate is imposed on the unpaid balance after crediting any payments made.

Very truly yours,

DuBois & King, Inc.

John F. Amadon
Laboratory Director

JFA/ch

ACCEPTED AND AUTHORIZED TO PROCEED

Date: _____

By: _____
Authorized Representative

AUTHORIZED TO PROCEED

Date: _____

By: Steven E. Mackenzie, P.E.
Vice President
DuBois & King, Inc.

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